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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,750	10/23/2001	Wade C. Patterson	8213	5036

22922 7590 12/22/2005

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EXAMINER
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LI, SHI K

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/035,750	PATTERSON ET AL.
	<b>Examiner</b> Shi K. Li	<b>Art Unit</b> 2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 October 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 and 3-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1 and 3-21 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 05 October 2005 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 14-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 14 recites the limitation "a repetition rate of between two and ten Hertz" in line 2 of the claim. Instant specification teaches sending pulses every 250 milliseconds (see e.g., lines 4-5 on page 9) which is equivalent to four (4) Hz. The instant specification as originally filed does not teach a repetition rate of between two and ten Hertz and, therefore, the limitation is considered as new subject matter.

Claim 15 recites the limitation "9600 bits per second" in line 3 of the claim. The instant specification as originally filed does not teach 9600 bits per second and, therefore, the limitation is considered as new subject matter.

Claim 16 recites the limitation "including a first digital-to-analog converter" in lines 2-3 of the claim and limitation "including a second digital-to-analog" converter in lines 4-5 of the claim. The instant specification as originally filed does not teach digital-to-analog converter and, therefore, the limitation is considered as new subject matter.

Claim 17 recites the limitation "said first infrared received comprises a first apparatus for receiving said reflected ranging pulses and a second apparatus for receiving communications signals" in lines 1-3 of the claim. The instant specification as originally filed does not teach such limitation and, therefore, the limitation is considered as new subject matter.

Claim 18 recites the limitation "back-to-back arrangement" in line 2 of the claim. The instant specification as originally filed does not teach back-to-back arrangement and, therefore, the limitation is considered as new subject matter.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-7 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Laverty, Jr. et al. (U.S. Patent 5,508,510).

Regarding claims 1 and 4, Laverty, Jr. et al. teaches a system which uses pulsed infrared sensor to control fluid flow. Laverty, Jr. et al. discloses in FIG. 10A infrared transmitter (XMTR) and infrared receiver (RCVR) for transmitting infrared pulses which are reflected by an object within the sensors field of view (see, e.g., col. 6, lines 63-65). Laverty, Jr. et al. teaches in FIG. 10A optional portable remote control device for detecting battery status of the infrared sensor. Inherently, the infrared sensor changes from normal mode, which is the detection of object for fluid control, to communication mode when the portable remote control device is activated within communication range of the infrared sensor.

Regarding claims 5-6, Laverty, Jr. et al. teaches in FIG. 10A photodiode.

Regarding claims 7, Laverty, Jr. et al. teaches in col. 1, lines 15-18 that the system is for controlling valve of a liquid supply unit.

Regarding claim 19, Laverty, Jr. et al. teaches in FIG. 10A photodiode.

Regarding claim 20, Laverty, Jr. et al. teaches in FIG. 2 LED.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4, 7-11, 13 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange et al. (U.S. Patent 4,916,613) in view of Laverty, Jr. et al. (U.S. Patent 5,769,120).

Regarding claims 1 and 4, Lange et al. discloses in FIG. 1 a system wherein a fixed device 1 communicates with a transmitter and receiver unit 12. Lange et al. teaches in FIG. 1 that device 1 comprises IR transmitter 3 and IR receiver 4. Lange et al. teaches in col. 2, lines 52-60 that transmitter 3 sends pulses which are reflected by a user and detected by receiver 4. Lange et al. teaches in col. 4, lines 4-8 that a communication link can be established by an operator using transmitter and receiver unit 12. The difference between Lange et al. and the claimed invention is that Lange et al. does not teach explicitly that transmitter and receiver unit 12 is a handheld device. However, it is well known in the art that handheld device is suitable for

such applications. For example, Laverty, Jr. et al. teaches in FIG. 13 a handheld remote control unit. One of ordinary skill in the art would have been motivated to combine the teaching of Laverty, Jr. et al. with the system of Lange et al. because a handheld device can be carried by an operator for interrogating rinsing systems in different rooms, e.g., in a hotel or office building environment. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a handheld remote control device for interrogating rinsing systems, as taught by Laverty, Jr. et al., in the system of Lange et al. because a handheld device can be carried by an operator for interrogating rinsing systems in different rooms, e.g., in a hotel or office building environment.

Regarding claims 7-8, Lang et al. teaches in col. 2, lines 52-54 that the system can serve as a hand rinsing system which operates upon the receipt of reflected ranging pulses.

Regarding claim 9-10, Lange et al. teaches in col. 2, lines 3-7 that the control unit interrogates state of the battery.

Regarding claim 11, Lange et al. teaches in col. 2, line 57 that the transmitter and receiver unit is used for programming.

Regarding claim 13, Lange et al. suggests in col. 1, lines 30-35 that the transmitter sends sequence of pulses.

Regarding claims 17-18, Laverty, Jr. et al. suggests in FIG. 13 a first apparatus for receiving signal from remote control unit and a second apparatus for receiving pulses reflected by users. One of ordinary skill in the art would have been motivated to use separate apparatuses for receiving reflected ranging pulses and for receiving communication signal from remote control unit because this approach allows the apparatuses to be positioned at appropriate

direction for optimal operation. For example, a detector for reflected ranging pulses would be positioned below a spout while an apparatus for communicating with the remote control unit would be positioned in a spot visible from above. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use separate apparatuses for reflecting ranging pulses and for receiving communication signal from remote control unit, as taught by Laverty, Jr. et al., in the system of Lange et al. because this approach allows the apparatuses to be positioned at appropriate direction for optimal operation.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laverty, Jr. et al. (U.S. Patent 5,508,510) in view of Bertsekas et al. ("Data Networks, Second Edition by D. Bertsekas et al., Prentice-Hall, 1992, pp. 64-67).

Laverty, Jr. et al. has been discussed above in regard to claims 1, 4-10 and 19-20. The difference between Laverty, Jr. et al. and the claimed invention is that Laverty, Jr. et al. does not teach transmitting signal for indicating error. However, error handling is well known in data communication. For example, Bertsekas et al. teaches in Section 2.4 automatic repeat request wherein a receiving party indicates error to the sending party and request retransmitting. One of ordinary skill in the art would have been motivated to combine the teaching of Bertsekas et al. with the system of Laverty, Jr. et al. because error indication such as NAK allows the sending party to resend information that has not been successfully received and corrects mistakes; otherwise, transferring of information can never be successful in noisy channels. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use error indication for requesting retransmission of information that has not been successfully received, as taught by Bertsekas et al., in the system of Laverty, Jr. et al. because error indication

such as NAK allows the sending party to resend information that has not been successfully received and corrects mistakes.

8. Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laverty, Jr. et al. (U.S. Patent 5,508,510) in view of Foster (U.S. Patent 6,125,482).

Laverty, Jr. et al. has been discussed above in regard to claims 1, 4-7 and 19-20. The difference between Laverty, Jr. et al. and the claimed invention is that Laverty, Jr. et al. does not teach providing past operation over the communication link. Foster teaches in col. 9, lines 48-50 to transfer hand wash count data stored in EEPROM to handheld computer 119. Foster suggests in FIG. 10 to use a cable for connecting the handheld computer and the hand wash station. However, it is well known in the art that any communication link, including infrared wireless link, can be used for such data transferring. One of ordinary skill in the art would have been motivated to combine the teaching of Foster with the modified system of Laverty, Jr. et al. because usage data provides information for scheduling other operations such as cleaning the sink and refilling soap dispenser. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the communication link in the system of Laverty, Jr. et al. for transferring past operation information, as taught by Foster, because usage data provides information for scheduling other operations such as cleaning the sink and refilling soap dispenser.

Regarding claim 21, Foster teaches in col. 7, lines 65-67 that operation range is adjusted by adjusting threshold.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laverty, Jr. et al. (U.S. Patent 5,508,510) in view of admission (admitted prior art).

Laverty, Jr. et al. has been discussed above in regard to claims 1, 4-7 and 19-20. The difference between Laverty, Jr. et al. and the claimed invention is that Laverty, Jr. et al. does not teach the repetition rate. Instance specification admits on page 4, first paragraph that IrDA compliant device emits pulse every 250 milliseconds, i.e., a repetition rate of 4 Hz. One of ordinary skill in the art would have been motivated to combine the teaching of admission with the system of Laverty, Jr. et al. because a repetition rate of 4 Hz is compliant with IrDA standard and has high compatibility with other infrared communication based products. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a repetition rate of 4 Hz, as taught by admission, in the system of Laverty, Jr. et al. because a repetition rate of 4 Hz is compliant with IrDA standard and has high compatibility with other infrared communication based products.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laverty, Jr. et al. (U.S. Patent 5,508,510) in view of Official Notice.

Laverty, Jr. et al. has been discussed above in regard to claims 1, 4-7 and 19-20. The difference between Laverty, Jr. et al. and the claimed invention is that Laverty, Jr. et al. does not teach data rate of communication signals. However, it is well known in the art that choice of data rate depends on information to be exchanged in a communication link, signal-to-noise ratio of the link, compatibility with other interfaces and cost. Infrared communication link can support a wide range of data rates. Official Notice is taken that 9600 bits/second is a common data rate used in serial interfaces. Its use is well known and expected in the art. It is also recognized that the claimed difference exists not as a result of an attempt by applicant to solve a problem but merely amounts to selection of expedients known to the artisan of ordinary skill as

design choices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a data rate of 9600 bits per second for the communication signals.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laverty, Jr. et al. (U.S. Patent 5,508,510) in view of Ikeuchi et al. (U.S. Patent 6,597,485 B1).

Laverty, Jr. et al. has been discussed above in regard to claims 1, 4-7 and 19-20. The difference between Laverty, Jr. et al. and the claimed invention is that Laverty, Jr. et al. does not teach digital-to-analog converter (DAC). Ikeuchi et al. teaches in FIG. 9 a DAC for adjusting the bias point of a laser diode. One of ordinary skill in the art would have been motivated to combine the teaching of Ikeuchi et al. with the system of Laverty, Jr. et al. because the feedback control of Ikeuchi et al. provides a stable laser data link. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a DAC, as taught by Ikeuchi et al., in the IR transmitters of the system of Laverty, Jr. et al. because the feedback control of Ikeuchi et al. provides a stable laser data link.

#### *Response to Arguments*

12. Applicant's arguments with respect to claims 1 and 3-21 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl  
14 December 2005

  
JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600



REPLACEMENT SHEET

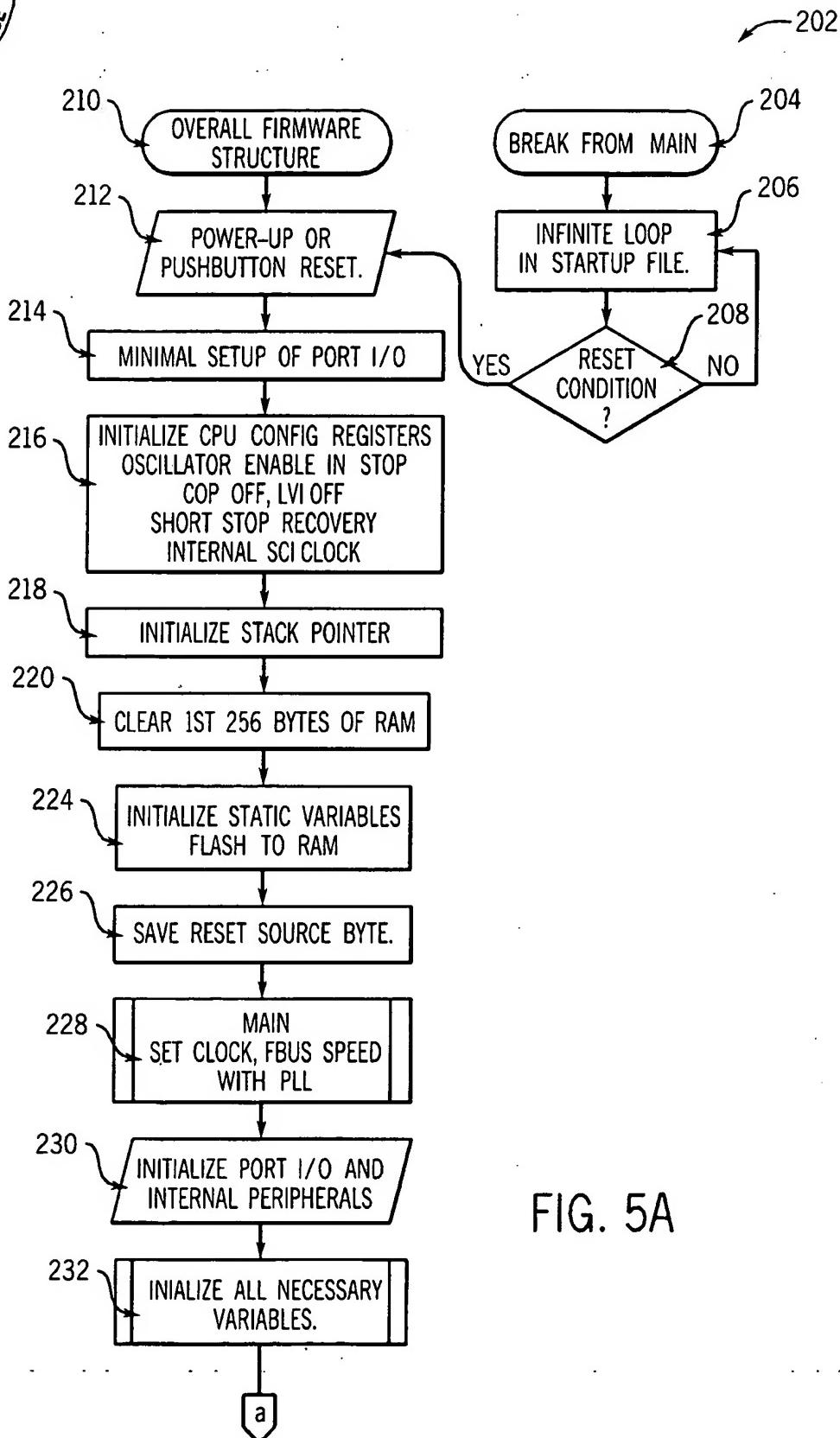


FIG. 5A

*dk 12/14/05*

REPLACEMENT SHEET

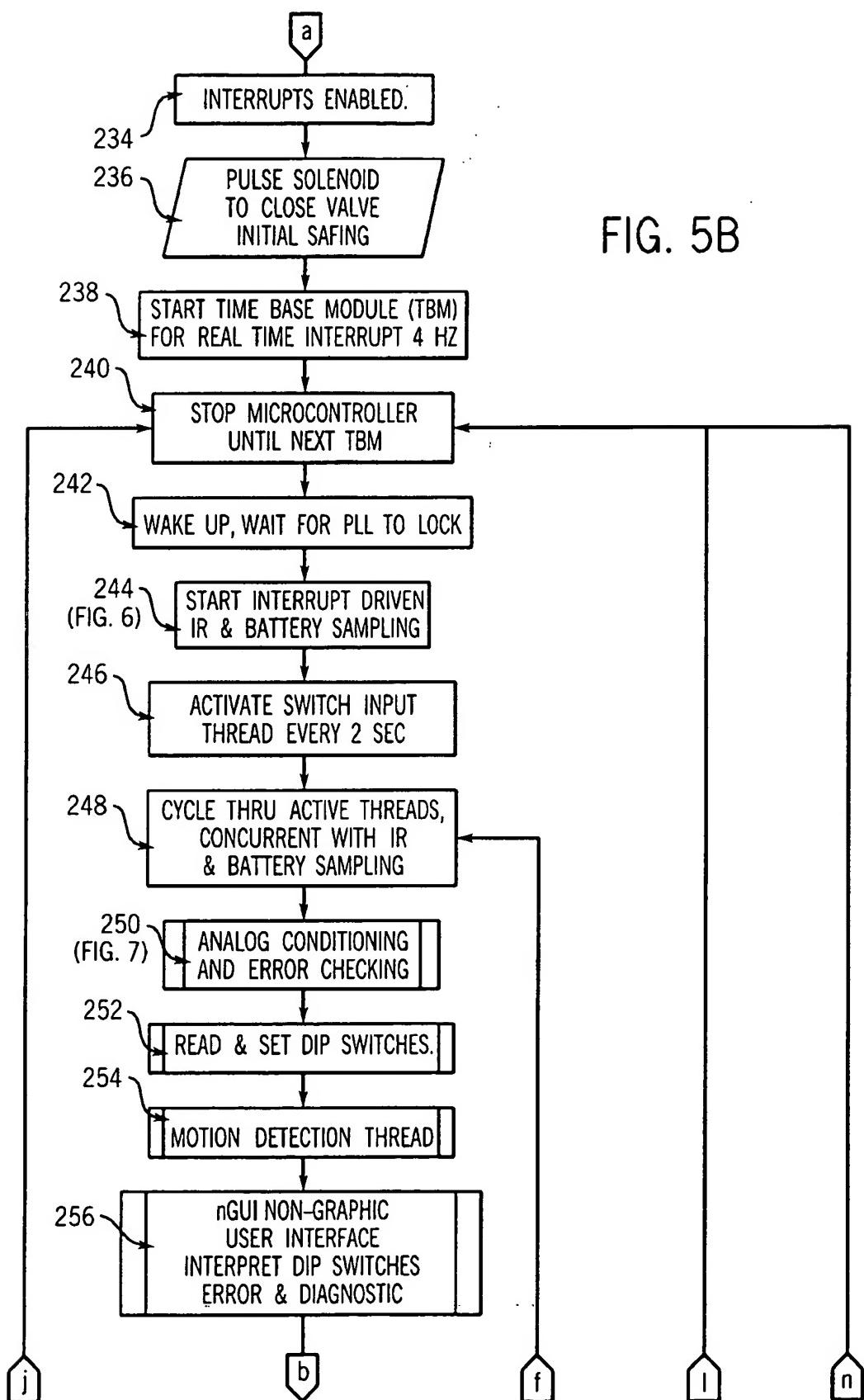
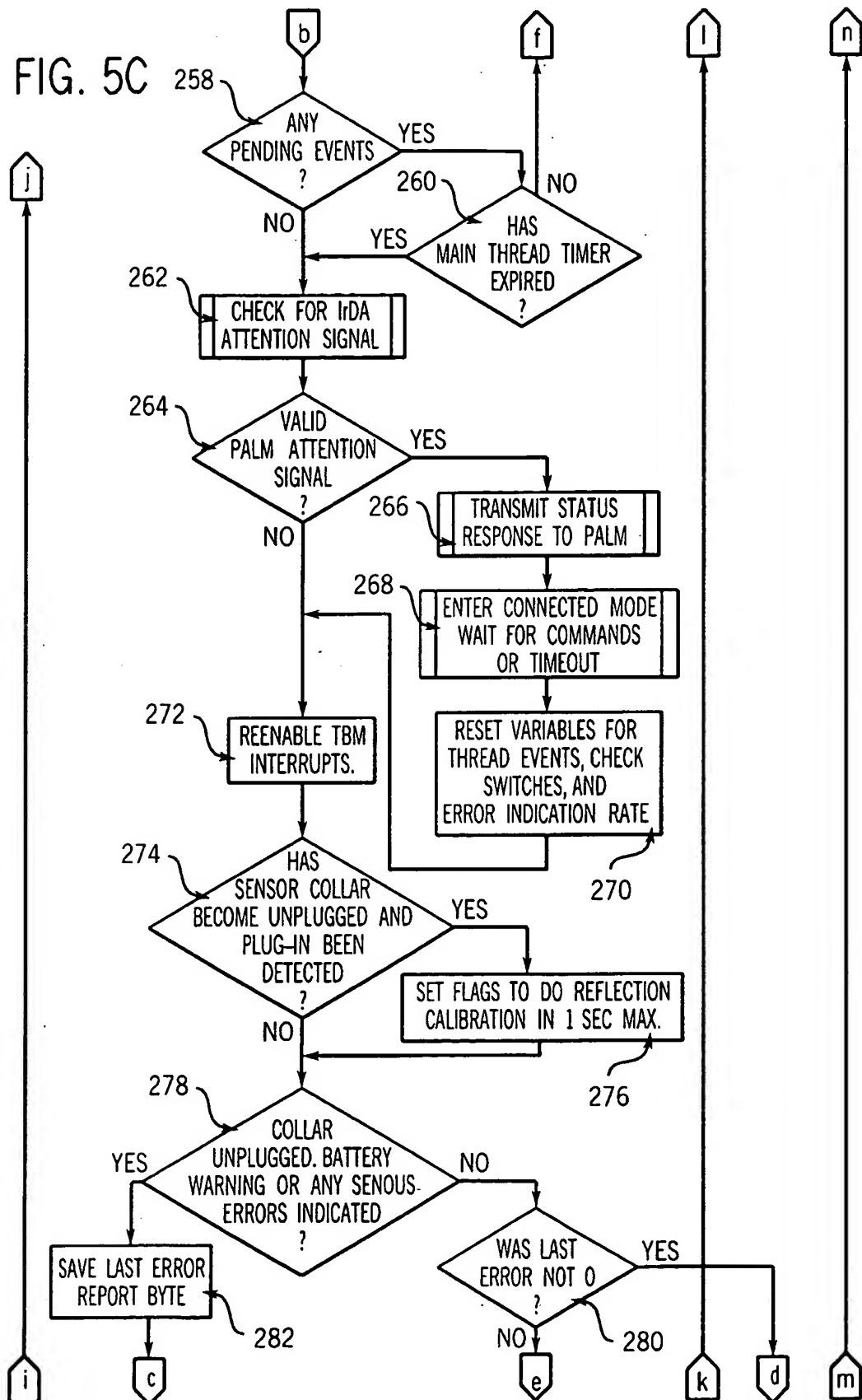


FIG. 5B

REPLACEMENT SHEET

FIG. 5C



REPLACEMENT SHEET

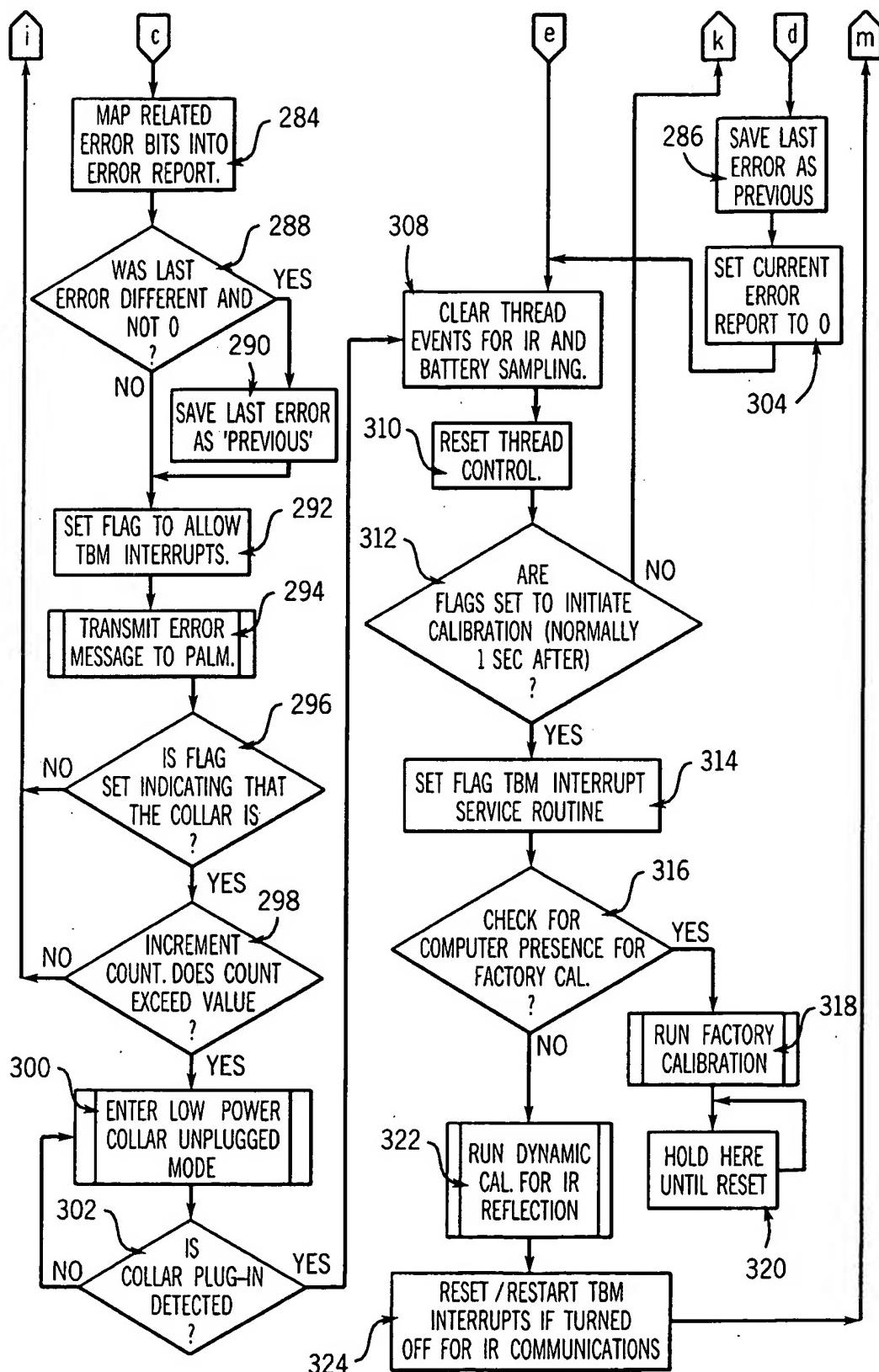


FIG. 5D

Mar 14/85

REPLACEMENT SHEET

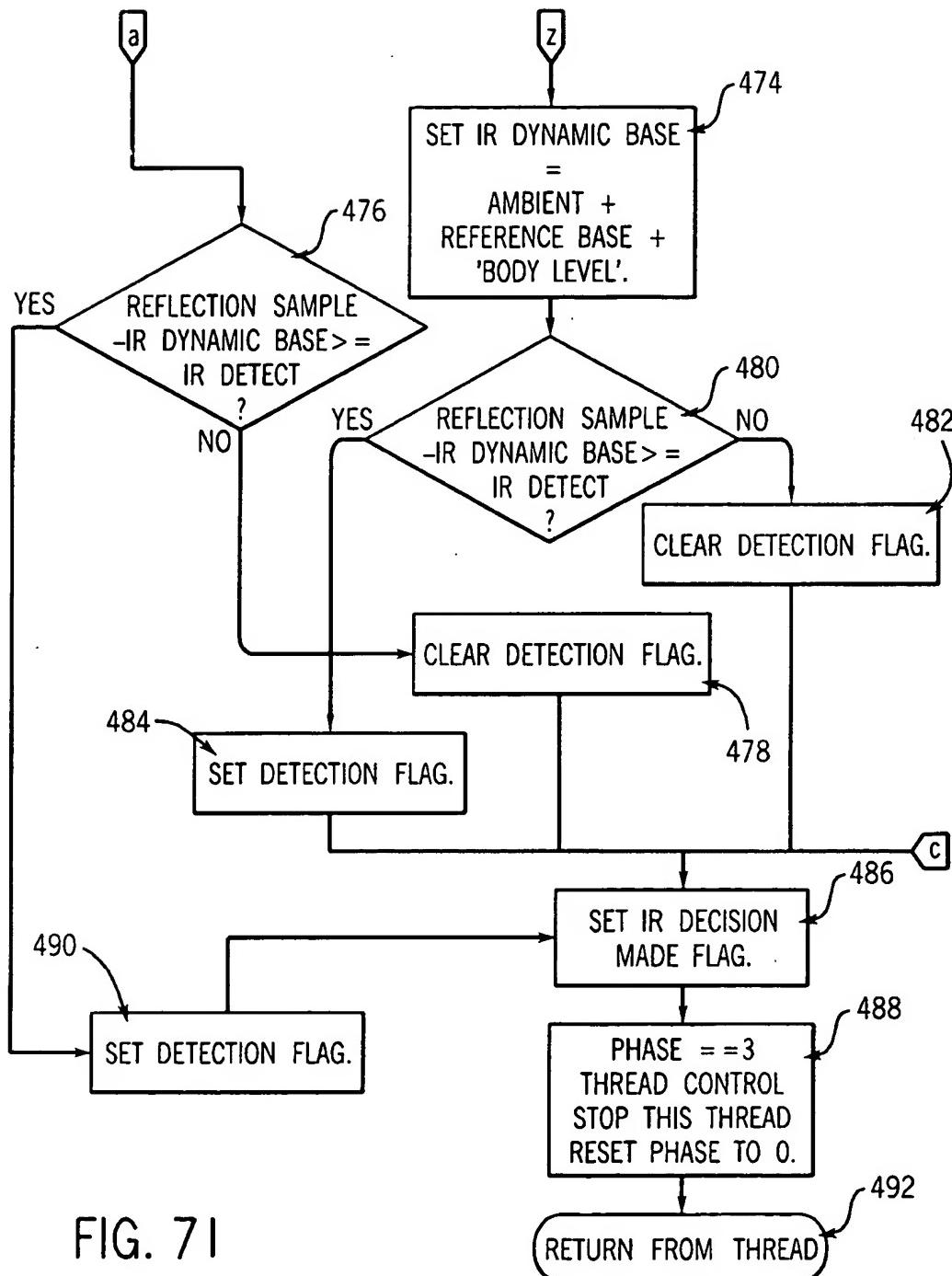
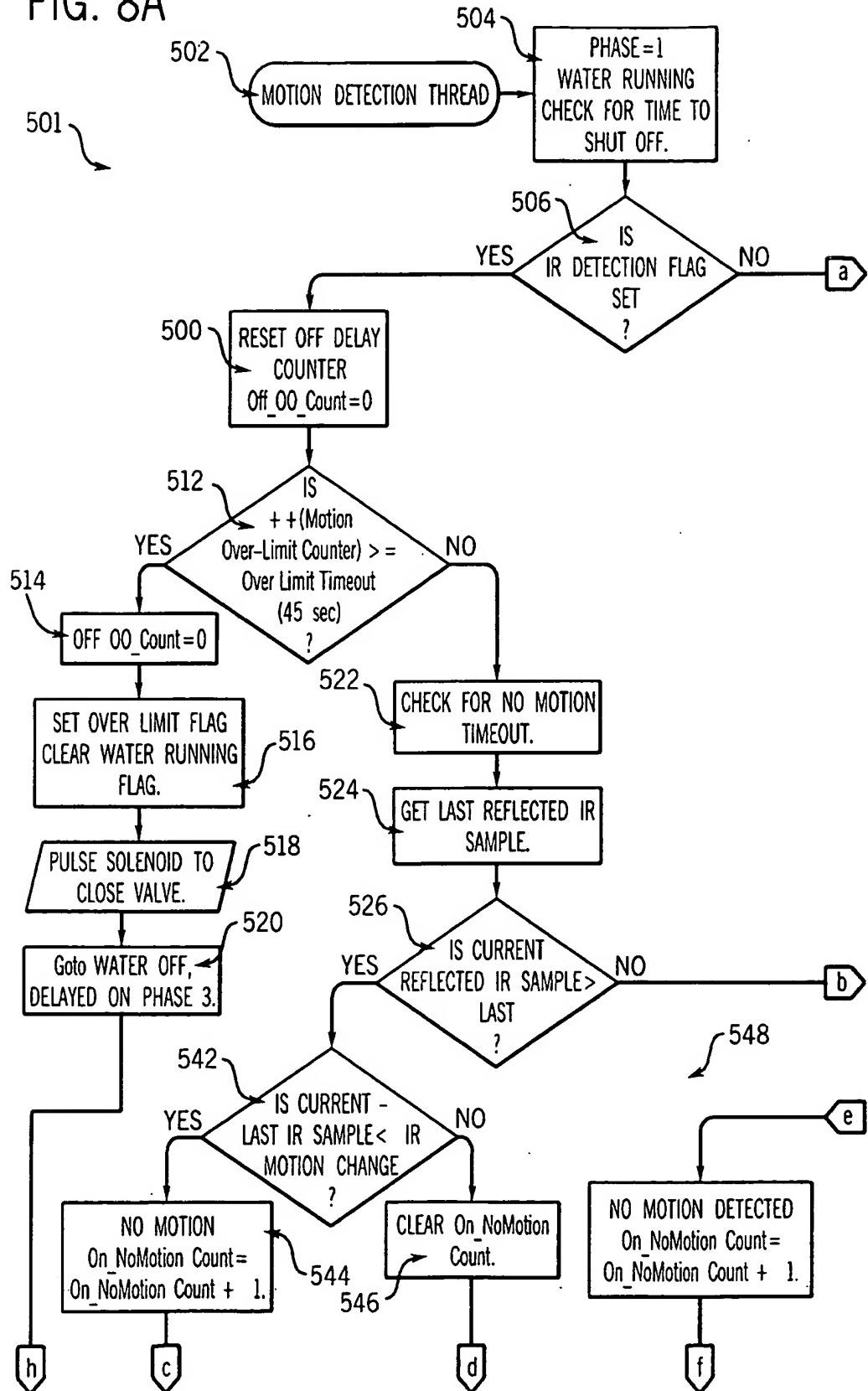


FIG. 71

Mr 12/14/05

## **REPLACEMENT SHEET**

FIG. 8A



Rev 12/14/05

REPLACEMENT SHEET

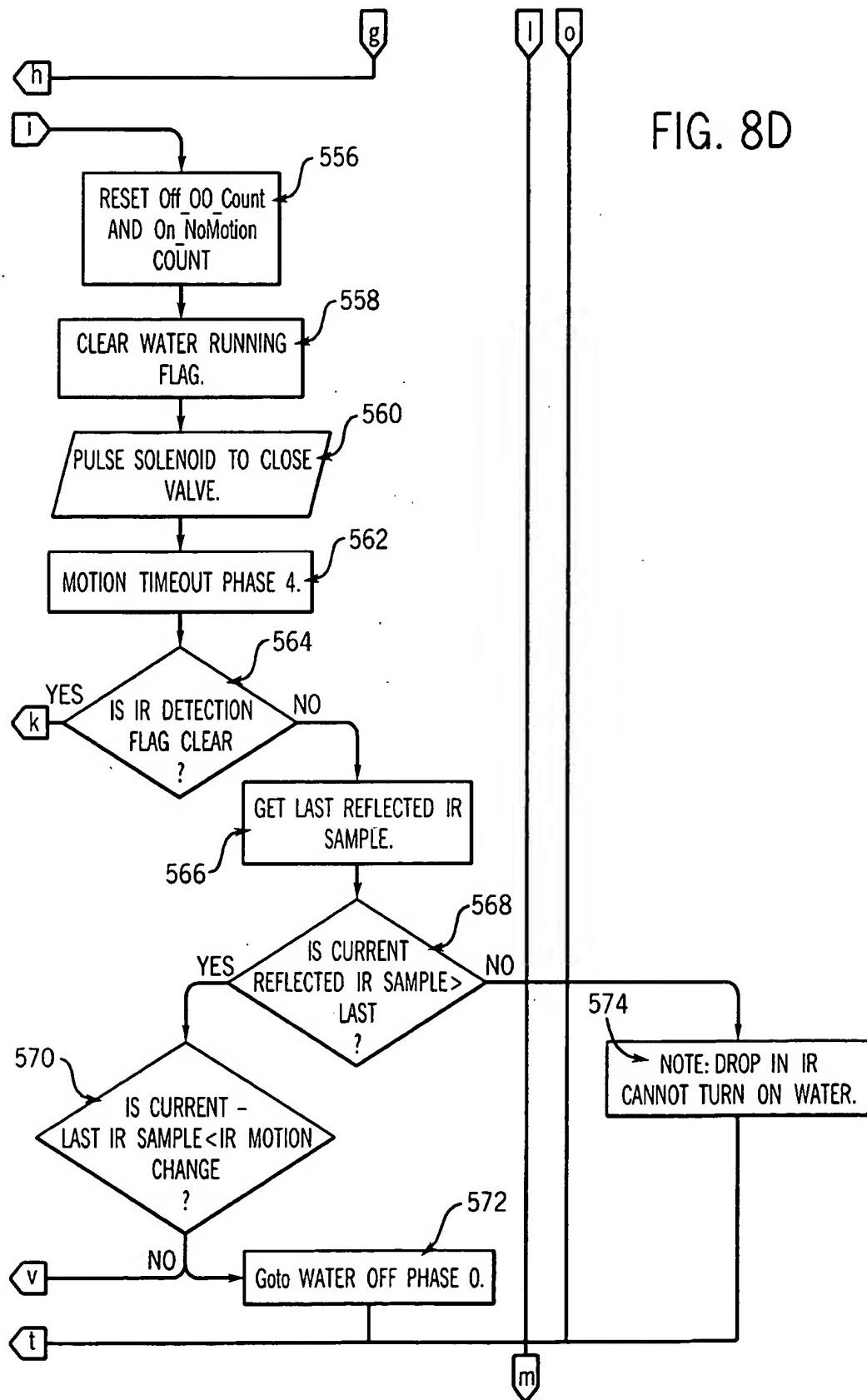


FIG. 8D